

WHAT IS CLAIMED IS:

1. An optical information recording medium comprising a substrate including an on-groove and an in-groove, the substrate having successively disposed thereon a recording layer containing a dye, and a transparent sheet,

wherein information is recorded and reproduced by irradiating laser light from the side of the medium disposed with the transparent sheet, a width of the on-groove ranges from 50 to 140 nm, and a barrier layer is formed between the recording layer and the transparent sheet.

2. The optical information recording medium according to claim 1, wherein a height of the on-groove ranges from 20 to 50 nm.

3. The optical information recording medium according to claim 1, wherein the recording layer contains a dye selected from the group consisting of a cyanine dye, an oxonol dye, a metal complex dye, an azo dye and a phthalocyanine dye.

4. The optical information recording medium according to claim 1, wherein the barrier layer contains at least one selected from the group consisting of ZnS, TiO₂, SiO₂, ZnS-SiO₂, GeO₂, Si₃N₄, Ge₃N₄ and MgF₂.

5. The optical information recording medium according to claim 1, wherein the transparent sheet comprises polycarbonate or cellulose triacetate.

6. The optical information recording medium according to claim 5, wherein the transparent sheet has a layer thickness ranging from 0.01 to 0.2 mm.

7. An optical information recording method comprising irradiating an optical information recording medium, that includes a substrate having successively disposed thereon a dye recording layer and a cover layer on a surface of the recording layer via a pressure sensitive adhesive layer or an adhesive layer, with laser light from the side of the medium disposed with the cover layer to form a void at a signal pit portion in the dye recording layer and thereby carrying out recording of information,

wherein a pulse width and/or power of the laser light is controlled such that a width of the void falls within a range of 50 to 250 nm.

8. An optical information recording medium, wherein information has been recorded thereon by the optical information recording method according to claim 7.

9. The optical information recording method according to claim 7, wherein the dye recording layer contains a dye selected from the group consisting of a cyanine dye, an oxonol dye, a metal complex dye, an azo dye and a phthalocyanine dye.

10. The optical information recording method according to claim 7,

wherein the dye recording layer has a layer thickness ranging from 20 to 500 nm.

11. The optical information recording method according to claim 7, wherein the cover layer comprises a resin sheet having a surface roughness Ra of 5 nm or less.

12. The optical information recording method according to claim 11, wherein the resin sheet comprises polycarbonate or cellulose triacetate.

13. The optical information recording method according to claim 11, wherein the cover layer has a layer thickness ranging from 0.03 to 0.15 mm.

14. An optical information recording method comprising irradiating an optical information recording medium, that includes a substrate having successively disposed thereon a dye recording layer and a cover layer on a surface of the recording layer via a pressure sensitive adhesive layer or an adhesive layer, with laser light from the side of the medium disposed with the cover layer to form a void at a signal pit portion in the dye recording layer and thereby carrying out recording of information,

wherein a pulse width and/or power of the laser light is controlled such that a proportion of a height of the void to a thickness of the dye recording layer falls within a range of 20 to 95%.

15. An optical information recording medium, wherein information has been recorded thereon by the optical information recording method according to claim 14.

16. The optical information recording method according to claim 14, wherein the dye recording layer contains a dye selected from the group consisting of a cyanine dye, an oxonol dye, a metal complex dye, an azo dye and a phthalocyanine dye.

17. The optical information recording method according to claim 14, wherein the dye recording layer has a layer thickness ranging from 20 to 500 nm.

18. The optical information recording method according to claim 14, wherein the cover layer comprises a resin sheet having a surface roughness Ra of 5 nm or less.

19. The optical information recording method according to claim 18, wherein the resin sheet comprises polycarbonate or cellulose triacetate.

20. The optical information recording method according to claim 18, wherein the cover layer has a layer thickness ranging from 0.03 to 0.15 mm.